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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,155	06/08/2001	Meoung Whan Cho	041501-5442	6714

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EXAMINER

CRANE, SARA W

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 04/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/876,155

Applicant(s)

CHO ET AL.

Examiner

Sara W. Crane

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of claims 1-15 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 and 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawasumi et al., Japan 7-263,752 and Fan et al., in view of Chen et al. and McIntosh et al.

With respect to claim 1, figure 1 (or figure 3) of Kawasumi et al. shows an LED having a substrate 1, and first and second light emission parts, one of III-V material, and one of II-VI material (abstract or figure 3), and each of the parts having electrodes. Fan figure 16 is similar (see column 22, lines 17-21). Each of these devices is capable of producing red, green and blue light simultaneously. Chen column 4, lines 62-66, teaches that these three colors can be combined to form white light. McIntosh figure 5, central portion, teaches the same thing. It would have been obvious to form white light by combining the three colors of either the Kawasumi device or the Fan device, as

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taught by the other two references, because white light is one of the colors needed for display of multi-color images.

With respect to claims 2-5 and 9, the material systems recited are taught in the references. For example, GaAs and AlGaAs are taught in Kawasumi et al. and Fan et al., and ZnCdSe, including Se or S, is taught at Kawasumi column 2, line 33. It would have been obvious to choose specific materials for each of the types of layers taught, depending on the function of each layer as is known in the art. For example, the specific composition of the light emitting layer is determined by the desired wavelength of emitted light, and by the necessity of lattice matching in order to grow the layer on the underlying layer. With respect to claim 10, Kawasumi et al. and Fan et al. each teach light emission of more than one wavelength. The electrode structure of claim 6 is taught by Kawasumi et al. With respect to claim 11, the multi-quantum well light emitting structure is taught by McIntosh et al. in most of the figures of that reference, and substitute materials would have been obvious in order to vary the wavelength of the light output, as noted above. With respect to claim 12, see figure 3 of Kawasumi et al.

Claims 7-8 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references as applied to claims 1-6 and 9-12 above, and further in view of Kotaki et al. and Scifres et al.

Kotaki et al. figure 1 and Scifres et al. figure 2 each teach the electrode configuration for a light-emitting device, where both electrodes reside on the same surface or same level of the device. This allows the substrate to be a non-conducting

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material such as sapphire, which is used to produce improved crystal growth structure. Where both electrodes are on the same surface, there must necessarily be a groove in between, and Scifres et al. shows a groove that does not extend into the light emitting layer. It would have been obvious to replace the electrode structure of each of the stacked Kawasumi or the Fan devices (which have top and bottom electrodes) by the electrode structure as taught by Kotaki et al. or Scifres et al. in order to allow for a non-conducting substrate.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Crane, whose telephone number is (703) 308-4894.

The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist, whose telephone number is (703) 308-0956.



Sara W. Crane
Primary Examiner
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